2.6 Noise

An acoustical impact analysis was prepared to determine the potential for short- and long-term noise impacts as a result of Project implementation. The report, titled, "Noise Study – Hawano Industrial Business Park Development" (dated November 9, 2011), was prepared by Ldn Consulting, Inc., and is provided as Appendix F to this EIR.

2.6.1 Existing Conditions

2.6.1.1 Noise Definitions

Noise is generally defined as unwanted or annoying sound that is typically associated with human activity and which interferes with or disrupts normal activities. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, the perceived importance of the noise and its appropriateness in the setting, the time of day, and the sensitivity of the individual hearing the sound. The minimum change in sound level that the human ear can detect is approximately 3 decibels (dB). A change in sound level of 10 dB is usually perceived by the average person as a doubling (or halving) of the sound's loudness.

The method commonly used to quantify environmental sounds consists of determining all of the frequencies of a sound according to a weighting system that reflects the nonlinear response characteristics of the human ear. This is called "A" weighting, and the decibel level measured is called the A weighted sound level (or dBA). The sound measure employed by the State of California and the County of San Diego is known as the Community Noise Equivalence Level (CNEL) which is defined as the "A" weighted average sound level for a 24-hour day. It is calculated by adding a 5-decibel penalty to sound levels in the evening (7:00 p.m. to 10:00 p.m.), and a 10-decibel penalty to sound levels in the night (10:00 p.m. to 7:00 a.m.) to compensate for the increased sensitivity to noise during the quieter evening and nighttime hours.

Although the A-weighted sound level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of sounds from distant sources that create a relatively steady background noise in which no particular source is identifiable. For this type of noise, a single descriptor called the "Leq" (or equivalent sound level) is used. Leq is the energy-mean A-weighted sound level during a measured time interval. It is the equivalent constant sound level that would have to be produced by a given source to equal the average of the fluctuating level measured.

2.6.1.2 Ambient On-Site Noise Measurement Results

To determine existing noise levels at the proposed Project site under existing conditions, measurements were taken at a single location on the Project site having direct line of site to Enrico Fermi Place and Airway Place. Since the Project site and most of the surrounding area is undeveloped under existing conditions with no improved roadways, these existing roadways at the western Project boundary represent the highest ambient noise levels on-site under existing conditions. The results of the sound level monitoring are shown below in Table 2.6-1, *Existing Noise Levels*. As shown, the ambient Leq noise levels measured during the morning hour were found to be roughly 48 dBA Leq. The primary source of noise is existing traffic along Enrico Fermi Place and Airway Place and background noise from aircraft activities along the Border Patrol corridor.

Table 2.6-1 EXISTING NOISE LEVELS

Location	Time	One Hour Noise Levels (dBA)					
		Leq	Lmin	Lmax	L10	L50	L90
Western Project Boundary (southwest corner of proposed Lot 2)	9:50 a.m. to 10:10 a.m.	47.7	43.6	55.8	49.8	46.9	45.0

Source: Ldn Consulting, Inc. (November 9, 2011)

2.6.1.3 Existing Off-Site Noise Levels

Existing noise levels for off-site roadways within the Project vicinity were estimated and are depicted in Table 2.6-2, *Existing Off-Site Noise Levels*. The noise levels depicted in Table 2.6-2 are representative of present-day conditions associated with existing traffic volumes. It should be noted that the values in Table 2.6-2 do not take into consideration the effect of any noise barriers or topography that may affect ambient noise levels. As shown, numerous roadways within the Project vicinity experience high noise levels under existing conditions. The highest noise levels occur along segments of Interim SR-905 (Otay Mesa Road) where noise levels typically exceed 75 dBA CNEL at a distance of 50-feet from the roadway, with the highest noise level of 83.0 dBA CNEL occurring along the segment of Interim SR-905 (Otay Mesa Road) between Heritage Road and Cactus Road.

2.6.1.4 Noise Element Criteria

The County has adopted interior and exterior noise standards as part of the County's Noise Element of the General Plan for assessing the compatibility of land uses with transportation related noise impacts. For assessing noise impacts to noise-sensitive land uses, the County requires an exterior noise level of less than 60 dBA CNEL for outdoor living areas and an interior noise standard of 45 dBA CNEL.

2.6.1.5 Applicable Regulatory Requirements

State Regulations and Standards

California Noise Control Act

This section of the California Health and Safety Code [Sections 46000-46080] finds that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also finds that there is a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

California Noise Insulation Standards

In 1974, the California Commission on Housing and Community Development adopted noise insulation standards for multi-family residential buildings (Title 24, Part 2, California Code of Regulations). Title 24 establishes standards for interior room noise (attributable to outside noise sources). The regulations also specify that acoustical studies must be prepared whenever a residential building or structure is proposed to be located near an existing or adopted freeway route, expressway,

parkway, major street, thoroughfare, rail line, rapid transit line, or industrial noise source, and where such noise source or sources create an exterior CNEL (or Ldn) of 60 dB or greater. Such acoustical analysis must demonstrate that the residence has been designed to limit intruding noise to an interior CNEL (or Ldn) of at least 45 dB.

Local Regulations and Standards

San Diego County General Plan, Noise Element, (Part VIII)

The Noise Element of the County of San Diego General Plan establishes limitations on sound levels to be received by noise sensitive land uses (NSLUs). New development may cause an existing NSLU to be affected by noise caused by the new development, or it may create or locate a NSLU in such a place that it is affected by noise. The Noise Element identifies airports and traffic on public roadways as the major sources of noise.

The Noise Element states that an acoustical study is required if it appears that a NSLU would be subject to noise levels of CNEL equal to 60 decibels (A) or greater. If that study confirms that greater than 60 dB CNEL would be experienced, modifications that reduce the exterior noise level to less than 60 dB CNEL and the interior noise levels to below 45 dB CNEL must be made to the development. If these modifications are not made, the development shall not be approved unless a finding is made that specific social or economic considerations warrant project approval; provided, that if the noise level would exceed 75 dB CNEL(A) even with such modifications, the development shall not be approved irrespective of such social or economic considerations.

"CNEL" is the Community Noise Equivalent Level, which is a 24-hour averaged measurement based upon the "(A)" or A-weighted sound levels, with certain penalties assigned to evening and nighttime noise, as described in Chapter 2 of the Noise Element. "Development" is defined as any physical development including but not limited to residences, commercial or industrial facilities, roads, civic buildings, hospitals, schools and airports. A "NSLU" is defined as any residence, hospital, school, hotel, resort, library, or any other facility where quiet is an important attribute of the environment. "Exterior Noise" means noise measured at an outdoor living area that meets specified minimum area requirements for single family detached dwelling projects, and for other projects it means noise measured at all exterior areas which are provided for group or private usable open space.

The Noise Element includes special provisions for County road construction projects and interior noise levels in rooms that are usually occupied only a part of the day (schools, libraries, etc.).

County of San Diego Noise Ordinance

The County of San Diego Noise Ordinance [San Diego County Code of Regulatory Ordinances. Title 3. Division 6. Chapter 4. Section 36.401] establishes prohibitions for disturbing, excessive, or offensive noise, and provisions such as sound level limits for the purpose of securing and promoting the public health, comfort, safety, peace, and quiet for its citizens. Planned compliance with sound level limits and other specific parts of the ordinance allows presumption that the noise is not disturbing, excessive, or offensive. Limits are specified depending on the zoning placed on a property (e.g., varying densities and intensities of residential, industrial and commercial zones). Where two adjacent properties have different zones, the sound level limit at a location on a boundary between two properties is the arithmetic mean of the respective limits for the two zones, except for extractive industries. It is unlawful for any person to cause or allow the creation of any noise that exceeds the applicable limits of the Noise Ordinance at any point on or beyond the boundaries of the property on

which the sound is produced. Furthermore, the Noise Ordinance allows the County to grant variances from the noise limitations for temporary on-site noise sources, subject to terms and conditions intended to achieve compliance.

The Noise Ordinance specifies one-hour average sound level limits (measured at the property boundary). All development projects in the County are required to comply with the sound level limits established Section 36.404 of the Noise Ordinance, which are summarized in Table 2.6-3, *San Diego County Code Section 36.404 Sound Level Limits*. Section 36.404 of the County of San Diego Noise Ordinance provides performance standards and noise control guidelines for determining and mitigating non-transportation, or stationary, noise source impacts to adjacent properties. The purpose of the noise ordinance is to protect, create and maintain an environment free from noise and vibration that may jeopardize the health or welfare, or degrade the quality of life. Section 36.404 subsection C applies to areas zoned S-88. S-88 zones are Specific Planning Areas which allow different uses. The limits shown in SEIR Table 2.6-3, subsection (1) apply to property with a residential, agricultural or civic use. The limits in subsection (3) apply to property with a commercial use. The limits in subsection (5) apply to property with an industrial use that would only be allowed in an M50, M52 or M54 zone. The noise limits of 70 dBA Leq in subsection (5) will be applied to the proposed Project based on the proposed Project and adjacent property uses.

According to the stationary source exterior noise standards, no person shall operate any source of sound at any location within the County or allow the creation of any noise on a property which causes the noise levels to exceed the exterior noise limits at the property boundary. Section 36.404(c), sets an exterior noise limit of 70 dBA Leq for daytime hours and nighttime hours. Additionally, Section 36.404(e) states that the sound level limits at a location on a boundary between two zones are the arithmetic mean of the respective limits for the two zones.

In addition, the County of San Diego Noise Ordinance, Sections 36.408 through 36.410, govern construction noise emissions, such as those that would be generated during construction of the proposed Project. Specifically, Section 36.408 governs the hours of operation of construction equipment, as follows:

> "*Except for emergency work, it shall be unlawful for any person to operate or cause to be operated, construction equipment:*
>
> *a) Between 7 p.m. and 7 a.m.*
>
> *b) On a Sunday or a holiday. For purposes of this section, a holiday means January 1st, the last Monday in May, July 4th, the first Monday in September, December 25th and any day appointed by the President as a special national holiday or the Governor of the State as a special State holiday. A person may, however, operate construction equipment on a Sunday or holiday between the hours of 10 a.m. and 5 p.m. at the person's residence or for the purpose of constructing a residence for himself or herself, provided that the operation of construction equipment is not carried out for financial consideration or other consideration of any kind and does not violate the limitations in sections 36.409 and 36.410."*

Section 36.409 addresses sound level limitations on construction equipment as follows:

> *"Except for emergency work, it shall be unlawful for any person to operate construction equipment or cause construction equipment to be operated, that exceeds an average sound level of 75 decibels for an eight-hour period, between 7 a.m. and 7 p.m., when measured at the*

boundary line of the property where the noise source is located or on any occupied property where the noise is being received."

Section 36.410 addresses sound level limitations on impulsive noise, and requires the following:

"In addition to the general limitations on sound levels in section 36.404 and the limitations on construction equipment in section 36.409, the following additional sound level limitations shall apply:

a) Except for emergency work or work on a public road project, no person shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in Table 36.410A [SEIR Table 2.6-4], when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period, as described in subsection (c) below. The maximum sound level depends on the use being made of the occupied property. The uses in Table 36.410A are as described in the County Zoning Ordinance..

b) Except for emergency work, no person working on a public road project shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in Table 36.410B [SEIR Table 2.6-5], when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period, as described in subsection (c) below. The maximum sound level depends on the use being made of the occupied property. The uses in Table 36.410B are as described in the County Zoning Ordinance..

c) The minimum measurement period for any measurements conducted under this section shall be one hour. During the measurement period a measurement shall be conducted every minute from a fixed location on an occupied property. The measurements shall measure the maximum sound level during each minute of the measurement period. If the sound level caused by construction equipment or the producer of the impulsive noise exceeds the maximum sound level for any portion of any minute, it will be deemed that the maximum sound level was exceeded during that minute."

2.6.2 Analysis of Project Effects and Determination as to Significance

2.6.2.1 East Otay Mesa Specific Plan Final EIR

The Final EIR for the EOMSP concluded that implementation of the uses identified by the EOMSP would result in significant and unmitigable impacts to residential areas and sensitive habitats/species from industrial/commercial uses and roadways. Mitigation measures were identified to reduce these impacts to the maximum feasible extent, although the mitigation measures were described as not fully mitigating noise impacts to less than significant levels.

In order to comply with the mitigation measures from the EOMSP Final EIR, a Project-specific noise impact analysis was prepared to identify Project-specific impacts and to identify additional mitigation measures, if necessary, to further reduce these impacts. In addition, a number of minor changes to the existing noise environment, surrounding land uses, and noise standards have occurred since the EOMSP was approved in 1994. Accordingly, the County determined that an additional site-specific analysis was necessary to determine whether additional mitigation measures are available to further reduce impacts and to ensure that the noise levels comply with the current standards as specified in the County's General Plan Noise Element.

2.6.2.2 Noise Sensitive Land Uses Affected by Airborne Noise

Guidelines for the Determination of Significance

The Project would have a significant adverse effect on noise if any of the following would occur as a result of a Project-related component:

(1) Project implementation would result in the exposure of any on- or off-site existing or reasonably foreseeable future Noise Sensitive Land Use (NSLU) to exterior or interior noise (including noise generated from the Project, together with noise from roads [existing and planned Circulation Element roadways], railroads, airports, heliports, and all other noise sources) in excess of any of the following:

A. Exterior Locations:
i. 60 dB CNEL; or
ii. An increase of 10dB (CNEL) over pre-existing noise.

B. Interior Locations:
45 dB (CNEL) except for the following cases:
i. Rooms which are usually occupied only a part of the day (schools, libraries, or similar facilities), the interior one-hour average sound level due to noise outside should not exceed 50 decibels (A).
ii. Corridors, hallways, stairwells, closets, bathrooms, or any room with a volume less than 490 cubic feet.

Threshold 1 is derived from the County of San Diego's "Guidelines for Determining Significance, Noise" (January 27, 2009), which is available for review at the County of San Diego Department of Planning and Development Services, 5510 Overland Avenue, 3rd Floor, San Diego, CA 92123. The "Guidelines for Determining Significance, Noise" (herein, "Noise Guidelines") are herein incorporated by reference pursuant to CEQA Guidelines Section 15150. The issue of noise is analyzed in this SEIR to determine if the proposed Project would be consistent with the San Diego County General Plan Noise Element Policy 4b, which establishes local noise standards for noise sensitive land uses.

Analysis

Noise Effects to On-Site Noise Sensitive Land Uses

The proposed Project consists of a subdivision and ultimate development of the site would be consistent with the EOMSP, which designates the site for light industrial land uses. The EOMSP does not permit NSLUs to be developed on-site. Therefore, implementation of the Project and future development of the site would not result in the exposure of any on-site NSLUs to unacceptable noise levels.

Noise Effects due to Long-Term Operation (Non-Vehicular)

As discussed above under SEIR Section 2.6.1.5, Section 36.404 of the County of San Diego Noise Ordinance provides performance standards and noise control guidelines for determining and mitigating non-transportation, or stationary, noise source impacts on adjacent properties. The EOMSP designates all areas adjacent to the proposed Project site for mixed or light industrial land

uses, which is the equivalent of the County's M50, M52 and/or M54 zone. Accordingly, the noise limits presented in subsection (5) of Table 2.6-3 (i.e., 70 dBA Leq) will be applied to the proposed Project. According to the stationary source exterior noise standards established in Section 36.404 of the Noise Ordinance, no person shall operate any source of sound at any location within the County or allow the creation of any noise on a property which causes the noise levels to exceed the exterior noise limits at the property boundary (i.e., 70 dBA Leq in the case of the proposed Project).

The proposed Project would subdivide the property into 23 developable lots to facilitate the ultimate development of the site with light industrial land uses; however no specific land uses or structures are proposed at this time. Typical sources of noise associated with light industrial development may include: rooftop mechanical ventilation units, truck traffic, truck loading/unloading, trash compactors, forklifts, and generators. The proposed Project also would include a 1.0-acre sewer lift station located immediately east of the Project site. Cumulative noise levels from all Project-related equipment would vary at the property line depending on the location and orientation of the equipment, the amount of each type of equipment, and the size of each type of equipment. Because specific details related to the ultimate uses and physical layout of on-site structures are not reasonably foreseeable at this time, it is impossible to project operational noise levels for the site due to the large number of unknown variables. Future implementing site plans, as required pursuant to the EOMSP, would be subject to additional review as part of site-specific studies to demonstrate compliance with the property line noise standards set forth in Section 36.404(c) of the Noise Ordinance.

Due to the EOMSP's property-line noise standard, requirements for future discretionary site plans, and the lack of NSLUs in the immediate Project vicinity, long-term operation of the Project (on-site) would not expose existing or reasonably foreseeable NSLUs (on the U.S. side of the border) to noise levels in excess of County standards (*i.e.*, 60 dBA for exterior locations, 45 dBA for interior locations). As such, a significant noise impact to NSLUs located in the County of San Diego would not occur from future on-site operations.

Based upon a recent aerial photograph, NSLUs (high density residential uses) are located south of the U.S.-Mexico border in the vicinity of the Project site at a distance of approximately 475 feet from the Project's southern boundary (i.e., southerly of APNs 648-070-23 and 648-070-25). Because the Project would be required to comply with Section 36.404(c) of the San Diego County Noise Ordinance, it was assumed that the noise level at the southern Project boundary would be 70 dBA, which would be reduced to 50.4 dBA Leq at a distance of 475 feet (i.e., the nearest NSLU in Mexico). This noise level estimate does not take into account a 16-foot high border fence that helps to reduce noise levels. Moreover, in the area where these NSLUs occur, there is a heavily traveled trucking corridor and Border Patrol corridor that increases ambient noise levels above the anticipated 50.4 dBA Leq that would be generated by the Project at this location, indicating that Project-related contributions to noise at this location would be below 3.0 dBA. Accordingly, long-term operation of the Project would not expose NSLUs in Mexico to unacceptable noise levels (*i.e.*, 60 dBA for exterior locations, 45 dBA for interior locations), and Project-related impacts would be less than significant.

Off-Site Noise Effects from Project Traffic Volumes

The analysis in this section is based in part on a Project-specific traffic impact analysis which assesses the near- and long-term traffic volumes on surrounding roadways (both with and without the

proposed Project). A copy of the Project's traffic study is included in the Technical Appendices to this SEIR under Appendix G.

For each roadway segment identified in the Project's traffic study, the worst-case average daily traffic (ADT) volume and observed/predicted speeds were evaluated to identify the corresponding reference noise level 50 feet from the centerline of each roadway and to identify distances from the roadway centerlines where a noise level of 60 dBA CNEL would be achieved. This assessment includes a comparison of the projected noise volumes that would occur both with and without Project-generated traffic. The results on this analysis are provided in detail in the Project-specific Noise Study, provided as Appendix F to this SEIR, and are summarized below.

As depicted in Table 2.6-2, it was determined that under existing conditions all study area roadway segments would generate noise levels in excess of 60 dBA, with exception of the segment of Airway Place between Airway Road and Siempre Viva Road. Existing traffic noise conditions along study area segments (other than Airway Place) range from 63.2 dBA to 83.0 dBA at a distance of 50 feet from the roadway centerline. The Project's ultimate contribution to off-site noise levels due to Project-related traffic volumes is summarized in Table 2.6-6, *Existing Plus Project Conditions Noise Levels*. Upon ultimate development of the Project site, noise conditions along study area segments (including Airway Place) would range from 58.1 dBA to 83.7 dBA at a distance of 50 feet from the roadway centerline. As depicted in Table 2.6-7, *Existing Versus Existing Plus Project Noise Levels*, noise increases due to the addition of Project traffic would range from 0.1 dBA to 8.9 dBA. Although all study area roadway segments (other than Airway Place) would produce noise levels in excess of 60 dBA, a significant impact would occur only if there are existing or proposed NSLUs located along these roadway segments. As depicted on Figure 2.6-1, *Nearby Residential Receptors*, the only roadway segment with existing or proposed NSLUs within the Project's study area is along Otay Mesa Road between Sanyo Avenue and Enrico Fermi Drive. With implementation of the proposed Project, the projected noise level along this roadway segment would be 75.5 dBA CNEL at a distance of 50 feet from the roadway centerline, which would exceed the County's 60 dBA CNEL standard for residential uses. However, the Project's incremental contribution to noise levels at this location would comprise only 2.8 dBA CNEL, which is below the level of perceptibility for changes to noise levels. Therefore, since the Project's contributions to noise levels impacting off-site NSLUs would be less than 3.0 dBA CNEL, impacts are evaluated as less than significant on a Project-specific basis. In addition, it should be noted that although both segments along Airway Place would experience noise level increases of more than 3 dBA CNEL, these roadway segments would not exceed 60 dBA CNEL (as shown in Table 2.6-7); therefore, Project-related traffic noise affecting the segments of Airway Place would not be significant.

2.6.2.3 Project Generated Airborne Noise

Guidelines for the Determination of Significance

The Project would have a significant adverse effect on noise if any of the following would occur as a result of a Project-related component:

(2) The Project will generate airborne noise which, together with noise from all other sources, will be in excess of either of the following:

A. Non-construction noise: The limit specified in San Diego County Code Section 36.404, General Sound Level Limits, at the property line of the property on which the

noise is produced or at any location on a property that is receiving the noise. The limits provided by Section 36.404 are summarized below in Table 2.6-3.

B. Construction Noise: Noise generated by construction activities related to the Project will exceed the standards listed in San Diego County Code Section 36.409, Sound Level Limits on Construction Equipment, and Section 36.410, Impulsive Noise Level Limits.

C. Impulsive Noise: Noise generated by the Project will exceed the standards listed in San Diego Code Section 36.410, Sound Level Limitations on Impulsive Noise.

Threshold 2 is derived from the County of San Diego's "Guidelines for Determining Significance, Noise" (January 27, 2009), which is available for review at the County of San Diego Department of Planning and Development Services, 5510 Overland Avenue, 3rd Floor, San Diego, CA 92123. The "Guidelines for Determining Significance, Noise" (herein, "Noise Guidelines") are herein incorporated by reference pursuant to CEQA Guidelines Section 15150. This section addresses the Project's consistency with the San Diego County Code of Regulatory Ordinances, Title 3, Division 6, Chapter 4 Noise Abatement and Control, Section 36.404, *General Sound Level Limits;* Section 36.409, *Sound Level Limits on Construction Equipment*, and Section 36.410, *Sound Level Limitations on Impulsive Noise*.

Analysis

Short-Term Construction Noise Emission Levels

Construction noise represents a short-term impact on the ambient noise levels. Noise generated by construction equipment includes haul trucks, water trucks, graders, dozers, loaders and scrapers can reach relatively high levels. Grading activities typically represent one of the highest potential sources for noise impacts. The most effective method of controlling construction noise is through local control of construction hours and by limiting the hours of construction to normal weekday working hours.

The U.S. EPA has compiled data regarding the noise generating characteristics of specific types of construction equipment. Noise levels generated by heavy construction equipment can range from 60 dBA to in excess of 100 dBA when measured at 50 feet. However, these noise levels diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 75 dBA measured at 50 feet from the noise source to the receptor would be reduced to 69 dBA at 100 feet from the source to the receptor, and reduced to 63 dBA at 200 feet from the source.

Using a point-source noise prediction model, calculations of the expected construction noise impacts were completed by the Project's noise consultant. The essential model input data for these performance equations include the source levels of each type of equipment, relative source to receiver horizontal and vertical separations, the amount of time the equipment is operating in a given day, also referred to as the duty-cycle and any transmission loss from topography or barriers.

The Project site would be mass graded in one phase using the grading equipment identified in Table 2.6-8, *Construction Noise Levels*. The equipment is anticipated to be spread out over the entire site; some equipment may be operating at or near the property line while the rest of the equipment may be

located as far as 700-feet from the same property line. This would result in an acoustical center for the grading operation at approximately 350-feet to the nearest property line. As shown in Table 2.6-8, if all the equipment was operating in the same location, which is not physically possible, the point source noise attenuation from construction activities would be approximately -10.1 dBA at a distance as close as 160-feet from the nearest property line. This would result in an anticipated worst-case combined noise level of 74.9 dBA at the property line. Given this and the spatial separation of the equipment, the noise levels would comply with the County of San Diego's 75 dBA standard at all property lines, and a significant impact would therefore not occur.

In addition, the proposed Project would not involve blasting or rock crushing during grading operations. Therefore, no impulsive noise source would occur during construction of the proposed Project, and the Project would therefore be fully compliant with Section 36.410 of the County Noise Ordinance.

Long-Term Operational Noise Emission Levels

Each lot on the Project site is designed for light industrial uses and therefore may utilize noise-producing equipment including rooftop mechanical ventilation units, truck deliveries, truck loading/unloading, trash compactors, forklifts and generators. The cumulative noise level from all equipment will vary at the property line depending on the location and orientation of the equipment, the amount of each type of equipment and the size of each type of equipment. Due to the large number of variables affecting the property line operational noise levels, it is not possible to project an exact noise level or to determine if the project will need mitigation in order to meet the County of San Diego and East Otay Mesa Specific Plan standards. Once a site-specific plan for each lot is determined, a property line noise analysis must be completed for each property line on the Project site to determine compliance with the property line standards.

Although details about the specific land uses and configuration of on-site structures are not currently known, future development of the Project site would be required to meet an exterior noise limit of 70 dBA Leq at the property line pursuant to the County Noise Ordinance requirements for the S88 zone. As such, the analysis contained herein assumes that noise levels at the property line would be less than or equal to 70 dBA Leq during both daytime and nighttime hours. Since it is presumed that noise levels at the property line would not exceed 70 dBA, the proposed Project would not exceed the noise limit specified in San Diego County Code Section 36.404(c), and a significant impact associated with long-term operation would not occur.

The proposed Project also includes a sewer lift station located off-site and across Alta Road on 1.0-acre site (as shown on SEIR Figure 1-1). The sewer lift station is surrounded by proposed industrial uses. The noise levels limits are governed under Section 36.404(c) of the Noise Ordinance, which as noted above sets an exterior noise limit for the industrial land uses of 70 dBA Leq for daytime hours and nighttime hours for uses that are identified for mixed or light industrial development as part of the S-88 zone. The lift station would be designed as a submersible station and would include two or three 40 HP pumps encased in a concrete vault. Based on a similar underground lift station, the pumps would generate a noise level of approximately 45 dB at a distance of 15 feet from the access hatch. As such, long-term operation of the sewer lift station would not exceed the noise limit specified in San Diego County Code Section 36.404(c), and a significant impact associated with the sewer lift station would not occur.

2.6.2.4 Ground-Borne Vibration and Noise Impact Analysis

Guidelines for the Determination of Significance

The Project would have a significant adverse effect on noise if the following would occur as a result of a Project-related component:

(3) Project implementation would expose the uses listed in Table 2.6-9 and Table 2.6-10 to ground-borne vibration or noise levels equal to or in excess of the levels shown.

Threshold 3 is derived from the County of San Diego's "Guidelines for Determining Significance, Noise" (January 27, 2009), which is available for review at the County of San Diego Department of Planning and Development Services, 5510 Overland Avenue, 3rd Floor, San Diego, CA 92123. The "Guidelines for Determining Significance, Noise" (herein, "Noise Guidelines") are herein incorporated by reference pursuant to CEQA Guidelines Section 15150. This section addresses the Project's potential to expose sensitive receptors to ground-borne vibration or noise above maximum permitted levels.

Analysis

Vibration refers to groundborne noise and perceptible motion. Typical sources of groundborne vibration are construction activities (*e.g.*, blasting, pile driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Groundborne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may be discernable but without the accompanying effects (*e.g.*, shaking of a building).

Groundborne vibration and noise are generally localized to areas within 100 feet from the vibration source. Mass grading of the site may produce minor levels of groundborne vibration and noise. However, the Project site and the immediate vicinity (areas within 100 feet) are vacant or otherwise do not contain any NSLUs; accordingly, there are no existing land uses (as listed on Table 2.6-9) or building types (as listed on Table 2.6-10) that are sensitive to groundborne vibration and noise located in the vicinity of the site. Existing development in Mexico is located beyond the range of vibration impacts, and therefore would not be exposed to minor amounts of groundborne vibration that may occur from on-site grading. Therefore, impacts from construction-related groundborne vibration and noise would be less than significant and no mitigation would be required.

Operational impacts would be exclusively limited to on-road vehicle-related vibration. Vehicles traveling on smooth, paved roadway surfaces produce little vibration. Project roadways (which would be public) and the surrounding public roadway system would be properly maintained by the County of San Diego Department of Public Works pursuant to Section 455(a)(1) of Article XXVI of the County of San Diego Code of Administrative Ordinances, thereby precluding any potential impacts related to vibration. Thus, vibration impacts related to long-term operation of the site would be less than significant and no mitigation would be required.

2.6.3 Cumulative Impact Analysis

2.6.3.1 Cumulative Impacts Identified by the EOMSP Final EIR

The EOMSP Final EIR (1994) concludes that "…transportation impacts will be both short- and long-term and cumulative as the area builds out, as are noise and air quality impacts." Additional analysis

of the Project's potential contribution to cumulatively significant noise effects is provided below in Section 2.6.3.2.

2.6.3.2 Project-Specific Cumulative Impact Analysis

A study area was defined in order to assess the cumulative effect of the Project's impacts to noise, as depicted on Figure 2.6-2, *Cumulative Study Area - Noise*. During near-term construction activities, any off-site grading operations occurring concurrent with Project construction activities and located within 160-feet of the proposed Project site have the potential to result in combined noise level increases of 3 decibels and could exceed the County's 75 dBA threshold. Therefore, for purposes of near-term construction activities, the cumulative study area for noise encompasses all areas within 160 feet of the proposed Project site. For long-term operational conditions, the Project and cumulative developments would be required to adhere to Section 36.404(c) of the County Noise Ordinance, which specifies an exterior noise limit of 70 dBA at the property line for properties zoned S88. Noise levels of 70 dBA would be reduced to 60 dBA at a distance of 160 feet. Therefore, any industrial operations located within 160-feet of the proposed Project site have the potential to result in a combined noise level in excess of 60 dBA Leq and have the potential to result in cumulatively significant impacts to NSLUs within the Project vicinity (e.g., sensitive receptors across the border in Mexico). Therefore, for purposes of long-term operation, the cumulative study area for noise encompasses all areas within 160 feet of the proposed Project site. For long-term vehicular related noise emissions, a cumulative study area was defined based on the intersections and roadway segments located within the study area identified for the Project's traffic study. The cumulative study area for long-term vehicular noise is appropriate because the Project's traffic study encompasses all roadway segments and intersections anticipated to receive substantial amounts of traffic from the proposed Project. Therefore, roadway segments and intersections located outside of the traffic study area would not be significantly affected by Project-related vehicular noise.

Research was conducted which resulted in a list of past, present, and reasonably foreseeable projects within the Project vicinity, that might contribute to noise-related impacts. SEIR Section 1.7 provides a summary of all the projects that were considered along with their identified impacts to each of the environmental issue areas addressed by this EIR. For purposes of near-term construction-related and long-term on-site operational cumulative noise impacts, only four projects are located in close proximity to the proposed Project site and have the potential to contribute to cumulatively considerable construction noise levels or operational noise levels, as depicted on Figure 2.6-2. For long-term vehicular-related noise emissions, the study area encompasses all 19 Projects identified in SEIR Table 1-11, *Cumulative Projects – Traffic* (refer also to SEIR Figure 2.8-15), as this area corresponds to the study area used in the Project's traffic study.

For near-term construction activities, and as shown on Figure 2.6-2, a total of four proposed projects are located within 160 feet of the Project site (Otay Crossings Commerce Park, Otay Business Park, Burke Minor Subdivision, and Otay Mesa Travel Plaza). If similar grading operations were to occur simultaneously on these adjacent projects at a distance of 160-feet from the Project's boundary, construction-related noise would be doubled at the shared property line. From a noise standpoint, the two separate operations would be considered overlapping and would act as a single noise generator. This would result in a noise level increase of 3 decibels and would exceed the County's threshold of 75 dBA (pursuant to County Noise Ordinance, Section 36.409). Therefore, if grading activities were to occur on adjacent project sites within 160 feet of the proposed Project site and simultaneous with

Project grading activities, a near-term cumulatively significant impact to noise would occur (**Significant Cumulative Impact N-1**).

All four of the cumulative Projects identified above under the discussion of cumulative construction noise impacts also are located within 160 feet of the proposed Project site, and therefore have the potential to contribute to cumulative noise levels associated with the Project. However, and as previously discussed, the only NSLU in close proximity to the Project site occurs in Mexico, roughly 475 feet south of the Project's southern boundary. Of the surrounding cumulative projects, only one (Otay Business Park) has the potential to cumulatively contribute to operational noise levels affecting the NSLUs in Mexico. The remaining three cumulative projects are located at a distance in excess of 160 feet from the Project's southern boundary, and therefore have no potential to contribute to cumulatively significant operational noise impacts in Mexico.

As discussed in SEIR Section 2.6.2.2, the actual sound levels generated on-site would be determined as part of future implementing site plans; however, for purposes of analysis, it is assumed that the Project would be required to achieve the sound level limits specified in Section 36.404(c) of the San Diego County Noise Ordinance, which specifies a maximum noise level of 70 dBA. Therefore, sound levels at the southern property line would not exceed 70 dBA. Project noise levels affecting NSLUs in Mexico would be reduced to approximately 50.4 dBA Leq at a distance of 475 feet, which is the closest NSLU to the Project site. According to the Draft SEIR prepared for Otay Business Park (SCH No. 2008061077), the Otay Business Park project is anticipated to produce noise levels of approximately 53.6 dBA Leq at the NSLUs in Mexico [based on a similar assumption that sound levels at the property line for Otay Business Park would not exceed 70 dBA, pursuant to Section 36.404(c) of the Noise Ordinance]. The combined noise level at these NSLUs would be 55.3 dBA (according to the Project's acoustical consultant), which is below the County's threshold of significance of 60 dBA for NSLUs. Therefore, a cumulatively significant impact to NSLUs from non-vehicular operational noise would not occur.

For long-term vehicular-related noise, Table 2.6-11, *Existing Versus Existing Plus Cumulative Noise Levels*, presents the existing year noise levels for study area roadway segments and compares those values to the cumulative year with and without the Project. As shown, the roadway noise levels are projected to change from -11.4 dBA CNEL to +7.8 dBA CNEL with the development of the proposed Project and the addition of traffic from cumulative developments.

Table 2.6-12, *Existing Plus Cumulative Versus Existing Plus Cumulative Plus Project Noise Levels*, presents a comparison of the cumulative year with and without the proposed Project noise levels for all roadway segments having a 3.0 dBA CNEL or greater increase, as identified in Table 2.6-11. Table 2.6-12 therefore indicates the Project-related contributions in the cumulative year.

There is a cumulative noise increase of more than 3 dBA CNEL on one or more segments of State Route 905, Otay Mesa Road, Airway Road, Sanyo Avenue and Enrico Fermi Drive, Enrico Fermi Place, and Siempre Viva Road as can be seen in Table 2.6-11. The Project has a cumulative considerable noise increase (1 dBA CNEL or more of the 3 dBA CNEL increase) on Old Otay Mesa Road between SR-125 and Harvest Road, Siempre Viva Road between Enrico Fermi Drive to Airway Place, along Airway Place and three segments of Enrico Fermi Drive, as shown in Table 2.6-12. Segments along Airway Place also would experience noise level increases of more than 3 dBA CNEL due to Project traffic, but the noise levels along this roadway would not exceed the County's 60 dBA CNEL threshold.

As noted previously, the segment of Otay Mesa Road between Sanyo Avenue and Enrico Fermi Drive is the only roadway segment within the Project's study area that contains NSLUs. Three existing residential units are located along this segment of Otay Mesa Road. As shown previously in Table 2.6-7, existing with Project noise levels would be approximately 75.5 dBA CNEL at these three residences, and the Project's contribution to the existing noise environment at these residences would be 2.8 dBA CNEL. However, and as more fully described in SEIR Section 2.8.3.2 under the discussion of cumulative traffic impacts, completion of the SR-905 facility would reduce the amount of traffic along the segment of Otay Mesa Road between Sanyo Avenue and Enrico Fermi Drive. Since many projects in east Otay Mesa cannot be implemented prior to completion of the SR-905 facility (including the proposed Project), it is reasonable to assume that the SR-905 would be open to traffic under cumulative conditions. As shown in Table 2.6-11, with this reduction in traffic volumes, noise levels at 50 feet from this roadway segment would decrease by 0.8 dBA CNEL as compared to existing conditions, from 72.7 to 71.9 dBA CNEL. Accordingly, the Project's cumulative contribution to noise impacts to existing NSLUs is evaluated as less than significant.

2.6.4 Significance of Impacts Prior to Mitigation

Significant Cumulative Impact N-1: If grading activities were to occur on adjacent project sites within 160 feet of the proposed Project site and simultaneous with Project grading activities, the resulting combined noise level would increase by 3 decibels and would exceed the County's threshold of 75 dBA. This condition would represent a near-term cumulatively significant impact to noise.

2.6.5 Mitigation

2.6.5.1 Mitigation Measures from the EOMSP Final EIR

Mitigation measures were identified by the EOMSP Final EIR (1994) to address impacts to noise resulting from construction and long-term operation of the uses identified by the EOMSP, and include the following:

8A. Noise sensitive land uses, including existing and proposed residences and all California gnatcatcher habitat, located within the estimated 60 CNEL noise contour shall have site specific noise studies prepared prior to approval of discretionary permits. Siting of industrial and commercial uses shall be such that adequate setbacks are created to minimize off-site noise impacts to sensitive receptors.

8B. Residential development shall be avoided in the areas where the projected CNEL noise contour for Brown Field exceeds 60 dB.

8C. All construction operations shall comply with the San Diego County Construction Noise Ordinance (Sections 36.408 through 36.410). All construction operations scheduled to occur within 1,500 feet of California gnatcatcher habitat shall prepare a project specific noise mitigation and monitoring program to demonstrate compliance with established noise standards.

8D. Project specific noise analyses shall be required in the hillside residential district prior to approval of projects in this area to assure noise compatibility with adjacent

projects, specifically the offroad vehicle park and the San Diego International Raceway.

EOMSP EIR Mitigation Measure 8A is intended for Project's that have the potential to impact NSLUs. As discussed in Section 2.6.2.3, Project-related noise would not result in any significant impacts to nearby NSLUs; therefore, Mitigation Measure 8A is not applicable to the proposed Project. EOMSP EIR Mitigation Measures 8B and 8D are not applicable to the proposed Project, as these mitigation requirements would apply to new residential development. Mitigation Measure 8C has been fulfilled by the preparation of a Project-specific noise impact analysis, which demonstrates that, with mitigation, direct and cumulative noise impacts during construction would comply with the San Diego County Construction Noise Ordinance.

2.6.5.2 Project-Specific Mitigation

M-N-1 **TEMPORARY NOISE IMPACTS: [DPLU, PCC] [D[W, PDCI] [DPLU, FEE X1]**
Intent: In order to comply with the County of San Diego Noise Ordinance 36.409, the following noise attenuation measures shall be implemented to reduce the cumulative sound levels generated from project grading operations. **Description of Requirement:** If cumulative grading operations are simultaneously occurring at a shared property line where an occupied structure is located, construction equipment operations shall be relocated to a distance of 225 feet from the shared property line. **Documentation:** The applicant shall provide a letter of agreement to this condition. **Timing:** The required actions shall occur throughout the duration of the grading operations. **Monitoring:** The [DPLU, PCC] shall review the letter of agreement of this condition to demonstrate compliance with County construction noise standards (Noise Ordinance, Section 36.409).

2.6.6 Conclusion

The following provides a summary of the significance of the impact identified above under Section 2.6.4 after incorporation of the mitigation measure identified under Section 2.6.5.

Significant Cumulative Impact N-1: With implementation of Mitigation Measure M-N-1, cumulative noise levels from Project grading activities and grading activities on adjacent properties would not exceed the County's 75 dBA threshold of significance for construction-related noise. Therefore, with incorporation of the required mitigation, near-term construction-related noise impacts would be reduced to less than significant levels.

Table 2.6-2 EXISTING OFF-SITE NOISE LEVELS

Roadway Segment	ADT[1]	Vehicle Speeds (MPH)[1]	Noise Level @ 50-Feet (dBA CNEL)	60 dBA CNEL Contour Distance (Feet)
Otay Mesa Road (Old Otay Mesa Road)				
SR-125 to Harvest Rd	14,068	55	76.4	2,202
Harvest Rd to Sanyo Ave	14,068	55	76.4	2,202
Sanyo Ave to Enrico Fermi Dr	9,456	40	72.7	930
Vann Centre Blvd to Michael Faraday Dr	-	-	-	-
Michael Faraday Dr to Enrico Fermi Dr	-	-	-	-
Enrico Fermi Dr to Alta Rd	6,089	40	70.8	599
Airway Road				
Sanyo Ave to Paseo de Las Americas	5,649	55	72.5	884
Paseo de Las Americas to Michael Faraday	4,533	55	71.5	709
Michael Faraday to Enrico Fermi Dr	2,918	40	67.6	287
Enrico Fermi Dr to Airway Pl	1,179	45	64.4	137
Siempre Viva Road				
Drucker Ln to SR-905	6,127	65	74.0	1,253
SR-905 to Paseo de Las Americas	17,146	65	78.5	3,506
Paseo de Las Americas to Michael Faraday	7,639	45	72.5	887
Michael Faraday to Enrico Fermi Dr	5,525	45	71.1	641
Enrico Fermi Dr to Airway Pl	1,052	40	63.2	103
Sanyo Avenue				
Otay Mesa Rd to Airway Rd	7,022	45	72.1	815
Enrico Fermi Drive				
Otay Mesa Rd to Airway Rd	2,949	45	68.4	342
Airway Rd to Enrico Fermi Pl	3,977	55	71.0	622
Enrico Fermi Pl to Siempre Viva Rd	4,355	55	71.3	682
Siempre Viva Rd to Via De La Amistad	7,588	55	73.8	1,188
Airway Place (c)				
Airway Rd to Enrico Fermi Pl	50	35	49.1	4
Enrico Fermi Pl to Siempre Viva Rd	50	35	49.1	4
Alta Road				
Donovan State Prison Rd to Calzada De La Fuente	5,873	40	70.6	578
Calzada De La Fuente to Lone Star Rd (Paseo De La Fuente)	5,890	45	71.4	684
Lone Star Rd (Paseo De La Fuente) to Otay Mesa Rd	6,057	40	70.8	596
SR-905				
South of Siempre Viva Rd	28,000	65	80.6	5,726
Interim SR-905 (Otay Mesa Rd)				
Heritage Rd to Cactus Rd	49,192	65	83.0	10,060
Cactus Rd to Britannia Blvd	46,383	65	82.8	9,485
Britannia Blvd to La Media Rd	20,025	65	79.1	4,095
La Media Rd to Piper Ranch Rd	14,941	55	76.7	2,338
Piper Ranch Rd to SR-125	14,132	65	77.6	2,890
SR 125				
North of Otay Mesa Rd	9,160	65	75.7	1,873

[1] Source: Project Traffic study prepared by Darnell and Associates, 11/11

Source: Ldn Consulting, Inc. (November 9, 2011)

Table 2.6-3 SAN DIEGO COUNTY CODE SECTION 36.404 SOUND LEVEL LIMITS

ZONE	TIME	ONE-HOUR AVERAGE SOUND LEVEL LIMITS (dBA)
(1) R-S, R-D, R-R, R-MH, A-70, A-72, S-80, S-81, S-87, S-90, S-92 and R-V and R-U with a density of less than 11 dwelling units per acre.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	50 45
(2) R-RO, R-C, R-M, S-86, V5 and R-V and R-U with a density of 11 or more dwelling units per acre.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	55 50
(3) S-94, V4 and all other commercial zones.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	60 55
(4) V1, V2 V1, V2 V1 V2	7 a.m. to 7 p.m. 7 p.m. to 10 p.m. 10 p.m. to 7 a.m. 10 p.m. to 7 a.m.	60 55 55 50
V3	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	70 65
(5) M-50, M-52 and M-54	Anytime	70
(6) S-82, M-56 and M-58	Anytime	75
(7) S88 (see subsection (c) below)		

(a) Except as provided in section 36.409 of the County Noise Ordinance, it shall be unlawful for any person to cause or allow the creation of any noise, which exceeds the one-hour average sound level limits in Table 2.6-3, when the one-hour average sound level is measured at the property line of the property on which the noise is produced or at any location on a property that is receiving the noise.

(b) Where a noise study has been conducted and the noise mitigation measures recommended by that study have been made conditions of approval of a Major Use Permit, which authorizes the noise-generating use or activity and the decision making body approving the Major Use Permit determined that those mitigation measures reduce potential noise impacts to a level below significance, implementation and compliance with those noise mitigation measures shall constitute compliance with subsection (a) above.

(c) S88 zones are Specific Planning Areas which allow different uses. The sound level limits in Table 2.6-3 above that apply in an S88 zone depend on the use being made of the property. The limits in Table 2.6-3, subsection (1) apply to property with a residential, agricultural or civic use. The limits in subsection (3) apply to property with a commercial use. The limits in subsection (5) apply to property with an industrial use that would only be allowed in an M50, M52 or M54 zone. The limits in subsection (6) apply to all property with an extractive use or a use that would only be allowed in an M56 or M58 zone..

(d) If the measured ambient noise level exceeds the applicable limit in Table 2.6-3, the allowable one-hour average sound level shall be the one-hour average ambient noise level, plus three decibels. The ambient noise level shall be measured when the alleged noise violation source is not operating.

(e) The sound level limit at a location on a boundary between two zones is the arithmetic mean of the respective limits for the two zones. The one-hour average sound level limit applicable to extractive industries, however, including but not limited to borrow pits and mines, shall be 75 decibels at the property line regardless of the zone in which the extractive industry is located.

(f) A fixed-location public utility distribution or transmission facility located on or adjacent to a property line shall be subject to the sound level limits of this section measured at or beyond six feet from the boundary of the easement upon which the facility is located.

Table 2.6-4 MAXIMUM SOUND LEVEL (IMPULSIVE) MEASURED AT OCCUPIED PROPERTY IN DECIBELS (DBA)

Occupied Property Use	*Decibels (dBA)*
Residential, village zoning, or civic use	*82*
Agricultural, commercial or industrial use	*85*

Source: County of San Diego Noise Ordinance, Table 36.410A.

Table 2.6-5 MAXIMUM SOUND LEVEL (IMPULSIVE) MEASURED AT OCCUPIED PROPERTY IN DECIBELS (DBA) FOR PUBLIC ROAD PROJECTS

Occupied Property Use	*dB(A)*
Residential, village zoning, or civic use	*85*
Agricultural, commercial or industrial use	*90*

Source: County of San Diego Noise Ordinance, Table 36.410B.

Table 2.6-6 EXISTING PLUS PROJECT CONDITIONS NOISE LEVELS

Roadway Segment	ADT[1]	Vehicle Speeds (MPH)[1]	Noise Level @ 50-Feet (dBA CNEL)	60 dBA CNEL Contour Distance (Feet)
Otay Mesa Road (Old Otay Mesa Road)				
SR-125 to Harvest Rd	22,661	55	78.5	3,547
Harvest Rd to Sanyo Ave	22,661	55	78.5	3,547
Sanyo Ave to Enrico Fermi Dr	18,049	40	75.5	1,776
Vann Centre Blvd to Michael Faraday Dr	-	-	-	-
Michael Faraday Dr to Enrico Fermi Dr	-	-	-	-
Enrico Fermi Dr to Alta Rd	6,907	40	71.3	679
Airway Road				
Sanyo Ave to Paseo de Las Americas	6,195	55	72.9	970
Paseo de Las Americas to Michael Faraday	5,215	55	72.1	816
Michael Faraday to Enrico Fermi Dr	3,600	40	68.5	354
Enrico Fermi Dr to Airway Pl	8,271	45	72.8	960
Siempre Viva Road				
Drucker Ln to SR-905	6,741	65	74.4	1,379
SR-905 to Paseo de Las Americas	19,806	65	79.1	4,050
Paseo de Las Americas to Michael Faraday	10,435	45	73.8	1,211
Michael Faraday to Enrico Fermi Dr	8,457	45	72.9	982
Enrico Fermi Dr to Airway Pl	7,599	40	71.7	748
Sanyo Avenue				
Otay Mesa Rd to Airway Rd	7,159	45	72.2	831
Enrico Fermi Drive				
Otay Mesa Rd to Airway Rd	12,360	45	74.6	1,435
Airway Rd to Enrico Fermi Pl	7,387	55	73.6	1,156
Enrico Fermi Pl to Siempre Viva Rd	7,765	55	73.9	1,215
Siempre Viva Rd to Via De La Amistad	8,202	55	74.1	1,284
Airway Place (c)				
Airway Rd to Enrico Fermi Pl	391	35	58.1	32
Enrico Fermi Pl to Siempre Viva Rd	391	35	58.1	32
Alta Road				
Donovan State Prison Rd to Calzada De La Fuente	6,146	40	70.8	605
Calzada De La Fuente to Lone Star Rd (Paseo De La Fuente)	6,299	45	71.7	731
Lone Star Rd (Paseo De La Fuente) to Otay Mesa Rd	6,603	40	71.1	650
SR-905				
South of Siempre Viva Rd	29,637	65	80.8	6,061
Interim SR-905 (Otay Mesa Rd)				
Heritage Rd to Cactus Rd	57,239	65	83.7	11,705
Cactus Rd to Britannia Blvd	54,430	65	83.5	11,131
Britannia Blvd to La Media Rd	27,663	65	80.5	5,657
La Media Rd to Piper Ranch Rd	22,579	55	78.5	3,534
Piper Ranch Rd to SR-125	21,906	65	79.5	4,480
SR 125				
North of Otay Mesa Rd	9,979	65	76.1	2,041

[1] Source: Project Traffic study prepared by Darnell and Associates, 11/11

Source: Ldn Consulting, Inc. (November 9, 2011)

Table 2.6-7 EXISTING VERSUS EXISTING PLUS PROJECT NOISE LEVELS

Roadway Segment	Existing Noise Level @ 50-Feet (dBA CNEL)	Existing Plus Project Noise Level @ 50-Feet (dBA CNEL)	Project Related Direct Noise Level Increase (dBA CNEL)
Otay Mesa Road (Old Otay Mesa Road)			
SR-125 to Harvest Rd	76.4	78.5	2.1
Harvest Rd to Sanyo Ave	76.4	78.5	2.1
Sanyo Ave to Enrico Fermi Dr	72.7	75.5	2.8
Vann Centre Blvd to Michael Faraday Dr	-	-	-
Michael Faraday Dr to Enrico Fermi Dr	-	-	-
Enrico Fermi Dr to Alta Rd	70.8	71.3	0.5
Airway Road			
Sanyo Ave to Paseo de Las Americas	72.5	72.9	0.4
Paseo de Las Americas to Michael Faraday	71.5	72.1	0.6
Michael Faraday to Enrico Fermi Dr	67.6	68.5	0.9
Enrico Fermi Dr to Airway Pl	64.4	72.8	**8.5**
Siempre Viva Road			
Drucker Ln to SR-905	74.0	74.4	0.4
SR-905 to Paseo de Las Americas	78.5	79.1	0.6
Paseo de Las Americas to Michael Faraday	72.5	73.8	1.4
Michael Faraday to Enrico Fermi Dr	71.1	72.9	1.8
Enrico Fermi Dr to Airway Pl	63.2	71.7	**8.6**
Sanyo Avenue			
Otay Mesa Rd to Airway Rd	72.1	72.2	0.1
Enrico Fermi Drive			
Otay Mesa Rd to Airway Rd	68.4	74.6	**6.2**
Airway Rd to Enrico Fermi Pl	71.0	73.6	2.7
Enrico Fermi Pl to Siempre Viva Rd	71.3	73.9	2.5
Siempre Viva Rd to Via De La Amistad	73.8	74.1	0.3
Airway Place (c)			
Airway Rd to Enrico Fermi Pl	49.1	58.1	**8.9**
Enrico Fermi Pl to Siempre Viva Rd	49.1	58.1	**8.9**
Alta Road			
Donovan State Prison Rd to Calzada De La Fuente	70.6	70.8	0.2
Calzada De La Fuente to Lone Star Rd (Paseo De La Fuente)	71.4	71.7	0.3
Lone Star Rd (Paseo De La Fuente) to Otay Mesa Rd	70.8	71.1	0.4
SR-905			
South of Siempre Viva Rd	80.6	80.8	0.2
Interim SR-905 (Otay Mesa Rd)			
Heritage Rd to Cactus Rd	83.0	83.7	0.7
Cactus Rd to Britannia Blvd	82.8	83.5	0.7
Britannia Blvd to La Media Rd	79.1	80.5	1.4
La Media Rd to Piper Ranch Rd	76.7	78.5	1.8
Piper Ranch Rd to SR-125	77.6	79.5	1.9
SR 125			
North of Otay Mesa Rd	75.7	76.1	0.4
Sound Levels provided are worst-case and do not take into account topography or shielding from barriers.			

Source: Ldn Consulting, Inc. (November 9, 2011)

Table 2.6-8 CONSTRUCTION NOISE LEVELS

Construction Equipment	Quantity	Source Level @ 50-Feet (dBA)[1]	Duty Cycle (Hours/Day)	Cumulative Noise Level @ 50-Feet (dBA)
Scraper	4	8	75	81.0
Compactor	2	8	75	78.0
Water Truck	2	8	70	73.0
Motor Grader	2	8	70	73.0
Loader	2	8	70	73.0
Dozer	2	8	75	78.0
			Cumulative Levels @ 50 Feet (dBA)	85.0
			Distance To Property Line	160
			Noise Reduction Due To Distance	-10.1
			NEAREST PROPERTY LINE NOISE LEVEL	**74.9**

[1] Source: U.S. Environmental Protection Agency (U.S. EPA), 1971 and Empirical Data

Source: Ldn Consulting, Inc. (November 9, 2011)

Table 2.6-9 GUIDELINES FOR DETERMINING THE SIGNIFICANCE OF GROUND-BORNE VIBRATION AND NOISE IMPACTS

Land Use Category	Ground-Borne Vibration Impact Levels (inches/sec rms)		Ground-Borne Noise Impact Levels (dB re 20 micro Pascals)	
	Frequent Events[1]	Occasional or Infrequent Events[2]	Frequent Events[1]	Occasional or Infrequent Events[2]
Category 1: Buildings where low ambient vibration is essential for interior operations. (research & manufacturing facilities with special vibration constraints)	0.0018 [3]	0.0018 [3]	Not applicable[5]	Not applicable[5]
Category 2: Residences and buildings where people normally sleep. (hotels, hospitals, residences, & other sleeping facilities)	0.0040	0.010	35 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use. (schools, churches, libraries, other institutions, & quiet offices)	0.0056	0.014	40 dBA	48 dBA

Source: U.S Department of Transportation, Federal Transit Administration, "Transit Noise and Vibration Impact Assessment," May 2006.

Notes for Table 2.6-9:

1. "Frequent Events" is defined as more than 70 vibration events per day. Most rapid transit projects fall into this category.
2. "Occasional or Infrequent Events" are defined as fewer than 70 vibration events per day. This combined category includes most commuter rail systems.
3. This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration sensitive manufacturing or research will require detailed evaluation to define acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.
4. Vibration-sensitive equipment is not sensitive to ground-borne noise.
5. There are some buildings, such as concert halls, TV and recording studios, and theaters, that can be very sensitive to vibration and noise but do not fit into any of the three categories. Table 2.6-9 gives criteria for acceptable levels of ground-borne vibration and noise for these various types of special uses.
6. For Categories 2 and 3 with occupied facilities, isolated events such as blasting are significant when the peak particle velocity (PPV) exceeds one inch per second. Non-transportation vibration sources such as impact pile drivers or hydraulic breakers are significant when their PPV exceeds 0.1 inch per second. More specific criteria for structures and potential annoyance were developed by Caltrans (2004) and will be used to evaluate these continuous or transient sources in San Diego County.

Table 2.6-10 GUIDELINES FOR DETERMINING THE SIGNIFICANCE OF GROUND-BORNE VIBRATION AND NOISE IMPACTS FOR SPECIAL BUILDINGS

Type of Building or Room	Ground-Borne Vibration Impact Levels (inches/sec rms)		Ground-Borne Noise Impact Levels (dB re 20 micro Pascals)	
	Frequent Events[1]	Occasional or Infrequent Events[2]	Frequent Events[1]	Occasional or Infrequent Events[2]
Concert Halls, TV Studios, and Recording Studios	0.0018	0.0018	25dBA	25dBA
Auditoriums	0.0040	0.010	30 dBA	38 dBA
Theaters	0.0040	0.010	35 dBA	43 dBA

Source: U.S Department of Transportation, Federal Transit Administration, "Transit Noise and Vibration Impact Assessment," May 2006.

Notes for Table 2.6-10:

1. "Frequent Events" is defined as more than 70 vibration events per day. Most rapid transit projects fall into this category.
2. "Occasional or Infrequent Events" are defined as fewer than 70 vibration events per day. This combined category includes most commuter rail systems.
3. If the building will rarely be occupied when the trains are operating, there is no need to consider impact.
4. For historic buildings and ruins, the allowable upper limit for continuous vibration to structures is identified to be 0.056 inches/second rms. Transient conditions (single-event) would be limited to approximately twice the continuous acceptable value.

Table 2.6-11 EXISTING VERSUS EXISTING PLUS CUMULATIVE NOISE LEVELS

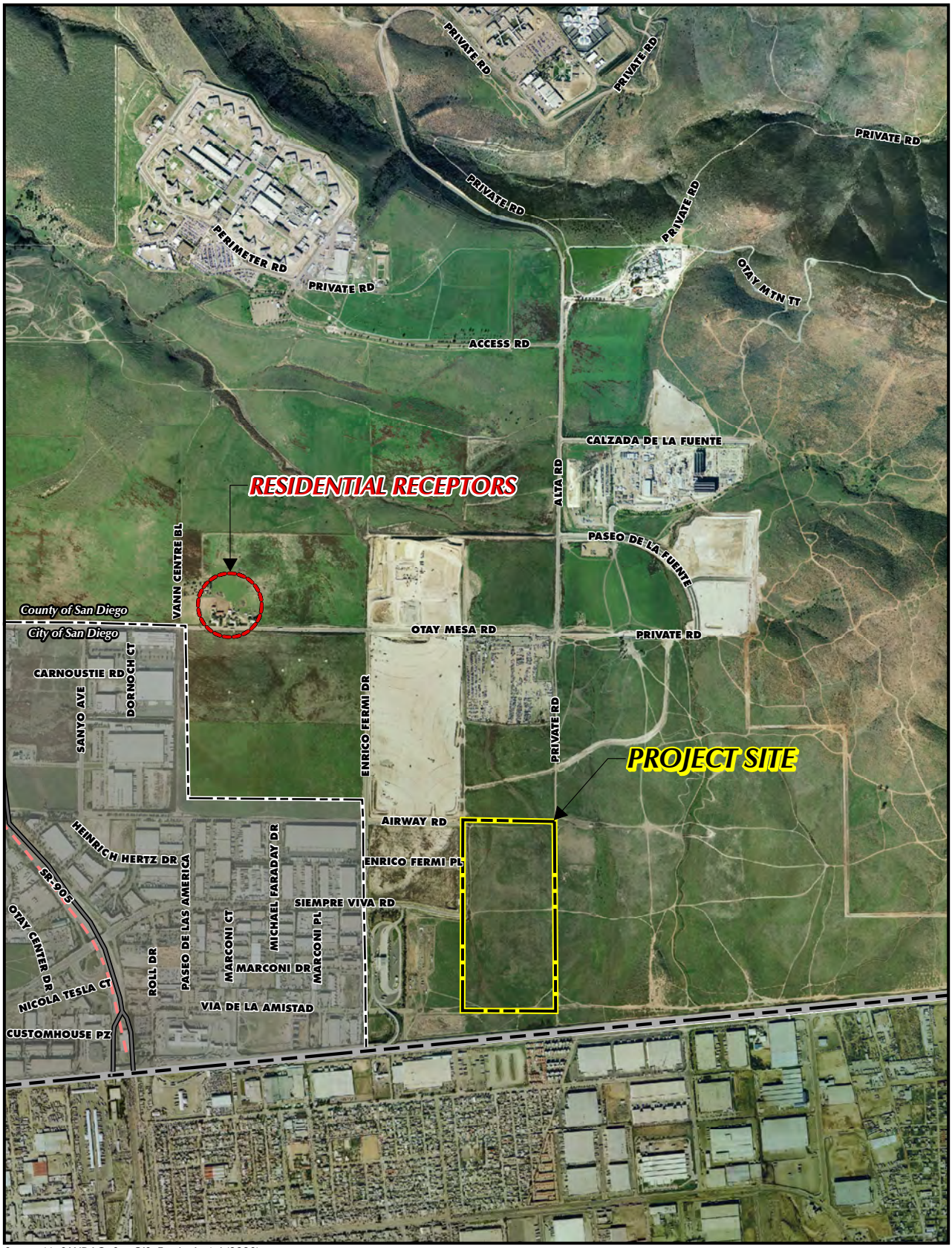
Roadway Segment	Existing Noise Level @ 50-Feet (dBA CNEL)	Existing + Project + Cumulative Noise Level @ 50-Feet (dBA CNEL)	Project Related Direct Noise Level Increase (dBA CNEL)
Otay Mesa Road (Old Otay Mesa Road)			
SR-125 to Harvest Rd	76.4	80.5	**4.1**
Harvest Rd to Sanyo Ave	76.4	76.8	0.4
Sanyo Ave to Enrico Fermi Dr	72.7	71.9	-0.8
Vann Centre Blvd to Michael Faraday Dr	-	72.1	New Segment N/A
Michael Faraday Dr to Enrico Fermi Dr	-	71.5	New Segment N/A
Enrico Fermi Dr to Alta Rd	70.8	75.6	**4.8**
Airway Road			
Sanyo Ave to Paseo de Las Americas	72.5	77.1	**4.6**
Paseo de Las Americas to Michael Faraday	71.5	71.4	-0.1
Michael Faraday to Enrico Fermi Dr	67.6	70.5	2.9
Enrico Fermi Dr to Airway Pl	64.4	65.9	1.5
Siempre Viva Road			
Drucker Ln to SR-905	74.0	79.4	**5.4**
SR-905 to Paseo de Las Americas	78.5	83.5	**5.0**
Paseo de Las Americas to Michael Faraday	72.5	77.4	**4.9**
Michael Faraday to Enrico Fermi Dr	71.1	76.8	**5.7**
Enrico Fermi Dr to Airway Pl	63.2	70.1	**6.9**
Sanyo Avenue			
Otay Mesa Rd to Airway Rd	72.1	75.8	**3.7**
Enrico Fermi Drive			
Otay Mesa Rd to Airway Rd	68.4	76.2	**7.8**
Airway Rd to Enrico Fermi Pl	71.0	76.5	**5.5**
Enrico Fermi Pl to Siempre Viva Rd	71.3	76.5	**5.2**
Siempre Viva Rd to Via De La Amistad	73.8	62.4	-11.4
Airway Place (c)			
Airway Rd to Enrico Fermi Pl	49.1	55.2	**6.1**
Enrico Fermi Pl to Siempre Viva Rd	49.1	55.2	**6.1**
Alta Road			
Donovan State Prison Rd to Calzada De La Fuente	70.6	71.9	1.3
Calzada De La Fuente to Lone Star Rd (Paseo De La Fuente)	71.4	74.7	**3.3**
Lone Star Rd (Paseo De La Fuente) to Otay Mesa Rd	70.8	73.8	**3.0**
SR-905			
South of Siempre Viva Rd	80.6	85.0	**4.4**
Interim SR-905 (Otay Mesa Rd)	New SR-905 is Built in the Cumulative Scenario and Interim 905 no longer exists.		
Heritage Rd to Cactus Rd			
Cactus Rd to Britannia Blvd			
Britannia Blvd to La Media Rd			
La Media Rd to Piper Ranch Rd			
Piper Ranch Rd to SR-125			
SR 125			
North of Otay Mesa Rd	75.7	77.6	1.9
Sound Levels provided are worst-case and do not take into account topography or shielding from barriers.			

Source: Ldn Consulting, Inc. (November 9, 2011)

Table 2.6-12 EXISTING PLUS CUMULATIVE VERSUS EXISTING PLUS CUMULATIVE PLUS PROJECT NOISE LEVELS

Roadway Segment	Existing + Cumulative Noise Level @ 50-Feet (dBA CNEL)	Existing + Project + Cumulative Noise Level @ 50-Feet (dBA CNEL)	Project Related Direct Noise Level Increase (dBA CNEL)
Otay Mesa Road (Old Otay Mesa Road)			
SR-125 to Harvest Rd	79.3	80.5	**1.2**
Enrico Fermi Dr to Alta Rd	75.4	75.6	0.2
Airway Road			
Sanyo Ave to Paseo de Las Americas	76.9	77.1	0.1
Siempre Viva Road			
Drucker Ln to SR-905	79.3	79.4	0.1
SR-905 to Paseo de Las Americas	83.3	83.5	0.2
Paseo de Las Americas to Michael Faraday	76.8	77.4	0.6
Michael Faraday to Enrico Fermi Dr	76.1	76.8	0.7
Enrico Fermi Dr to Airway Pl	63.2	70.1	**6.9**
Sanyo Avenue			
Otay Mesa Rd to Airway Rd	75.8	75.8	0.0
Enrico Fermi Drive			
Otay Mesa Rd to Airway Rd	72.9	76.2	**3.3**
Airway Rd to Enrico Fermi Pl	75.0	76.4	**1.5**
Enrico Fermi Pl to Siempre Viva Rd	75.0	76.4	**1.5**
Airway Place (c)			
Airway Rd to Enrico Fermi Pl	49.0	55.2	**6.2**
Enrico Fermi Pl to Siempre Viva Rd	49.0	55.2	**6.2**
Alta Road			
Calzada De La Fuente to Lone Star Rd (Paseo De La Fuente)	74.5	74.7	0.1
Lone Star Rd (Paseo De La Fuente) to Otay Mesa Rd	73.6	73.8	0.2
SR-905			
South of Siempre Viva Rd	83.7	83.8	0.1
Sound Levels provided are worst-case and do not take into account topography or shielding from barriers.			

Source: Ldn Consulting, Inc. (November 9, 2011)



Source(s): SANDAG, SanGIS, Eagle Aerial (2008)

FIGURE 2.6-1

0 1,000 2,000 Feet

Neaby Residential Receptors

CUMULATIVE PROJECTS

County of San Diego Projects

- 3. Airway Business Center/FedEx
- 4. Enrico Fermi Industrial Park
- 8. Otay Crossings Commerce Park
- 9. Otay Mesa Travel Plaza
- 10. East Otay Temporary Fire Facility
- 11. Burke Minor Subdivision
- 23. Otay Business Park

Construction Noise Cumulative Study Area

Long-Term Operational Noise Cumulative Study Area

0 350 700 Feet

FIGURE 2.6-2
Cumulative Study Area - Noise